

An Online Conversational Learning Environment Based on Quasi Entailment Mesh

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1. Introduction: Quasi Entailment Mesh and Reflection-in-Action

This paper proposes a specific virtual environment for conversational knowledge production which brings together knowledge from these two learning fields: Gordon Pask's "Conversational Theory" and Donald A. Schön's "Reflection in Action".

It will discuss the benefits of the proposed online environment in which learning can take place through interpreted formal relationships in a certain context. Furthermore, it will elaborate on the opportunities and challenges of designing and developing different media that can activate different ways of "seeing-as" and reflection-in-action (in and beyond the design domains).

In this context, a short review of former studies will be made (Section 2) and examples of interactive simplified (quasi) Entailment Mesh visualizations (which were based on data collected through various workshops) will be introduced (Section 3).

In Section 4 alternative ways of implementing the proposed online environment will be discussed with illustrative interaction scenarios.

2. Review of the Previous Work

Classic examples such as Pask's (1975) CASTE (Course Assembly System and Tutorial Environment) and Pangaro's Thoughtsticker will be revealed in this section.

Donald A. Schön's description of "Reflection in Action" will be visited to establish links between the "Conversational Theory".

Furthermore, Glanville and Pak's (2010) "Quasi Entailment Mesh" will be discussed.

3. Interactive Visualization of Quasi Entailment Meshes

In this section, the author's former studies on the interactive visualization of Quasi Entailment Meshes will be revealed. These interactive visualizations were created as a result of a real-life conversation on cybernetics between various participants. They are interesting because participants can “construct” various definitions of cybernetics and elements of their conversation on this topic in a relational manner and explore the explanations attached to these links.

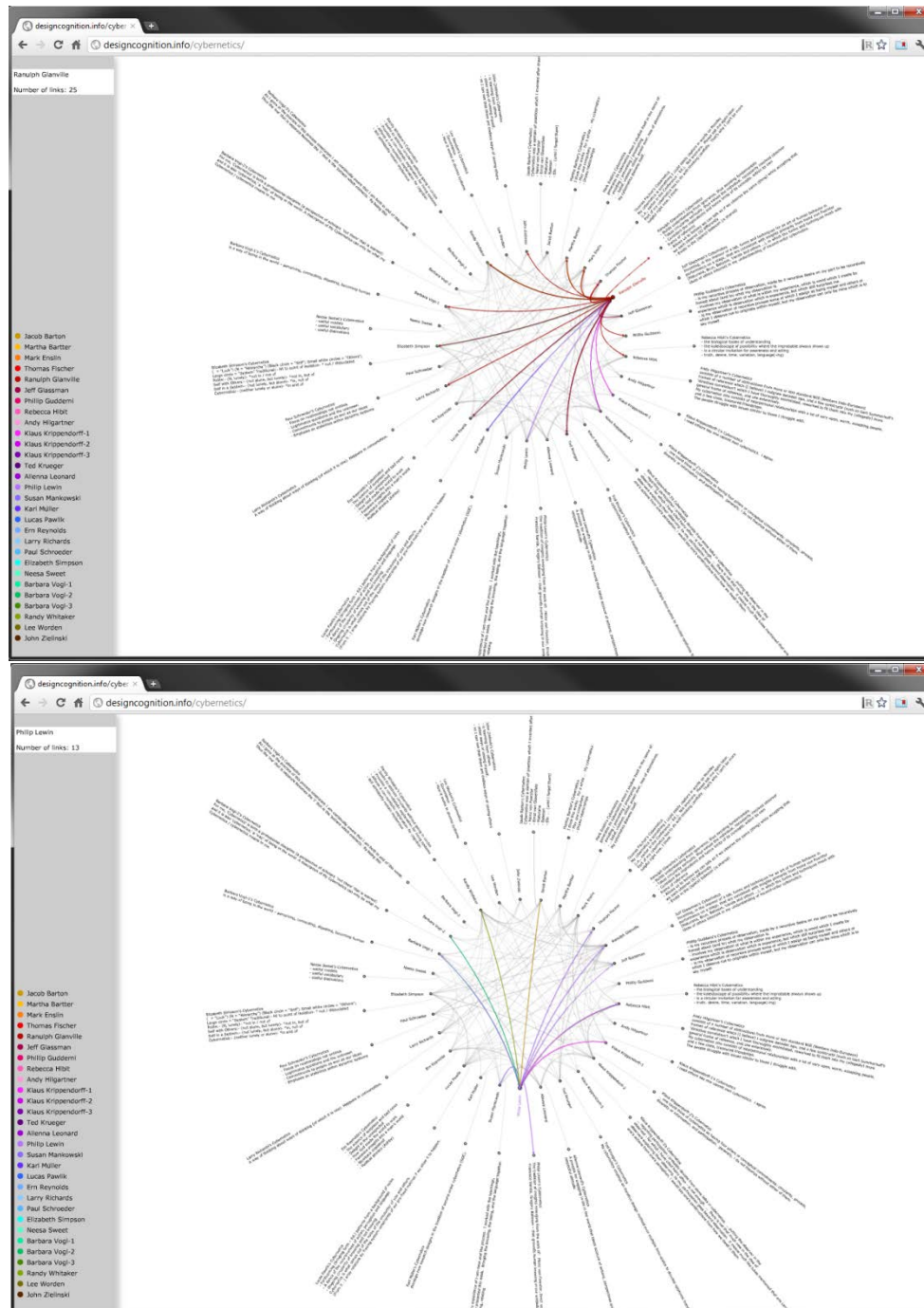


Figure 1. Interactive Visualizations of Quasi Entailment Meshes based on data collected through a real-life workshop. <http://urbanarchitecturedesign.be/cybernetics/>

4. A Web-based Visual Learning Environment for Social Knowledge Construction

In this section the conceptual design of a "learning/reflecting environment" will be introduced. It is a dynamic online space that aims at bringing together people and ideas from different practice domains where they can discuss ideas in forms of logical entailment(s)).

In this space, the participants will be able to:

- Reference each other
- Observe and take action in a reflective manner
- Transform the contents
- Create circular discussions
- Provide multiple perspectives

Every participant will be able to create their own knowledge constructs which can be observed and transformed by other users.

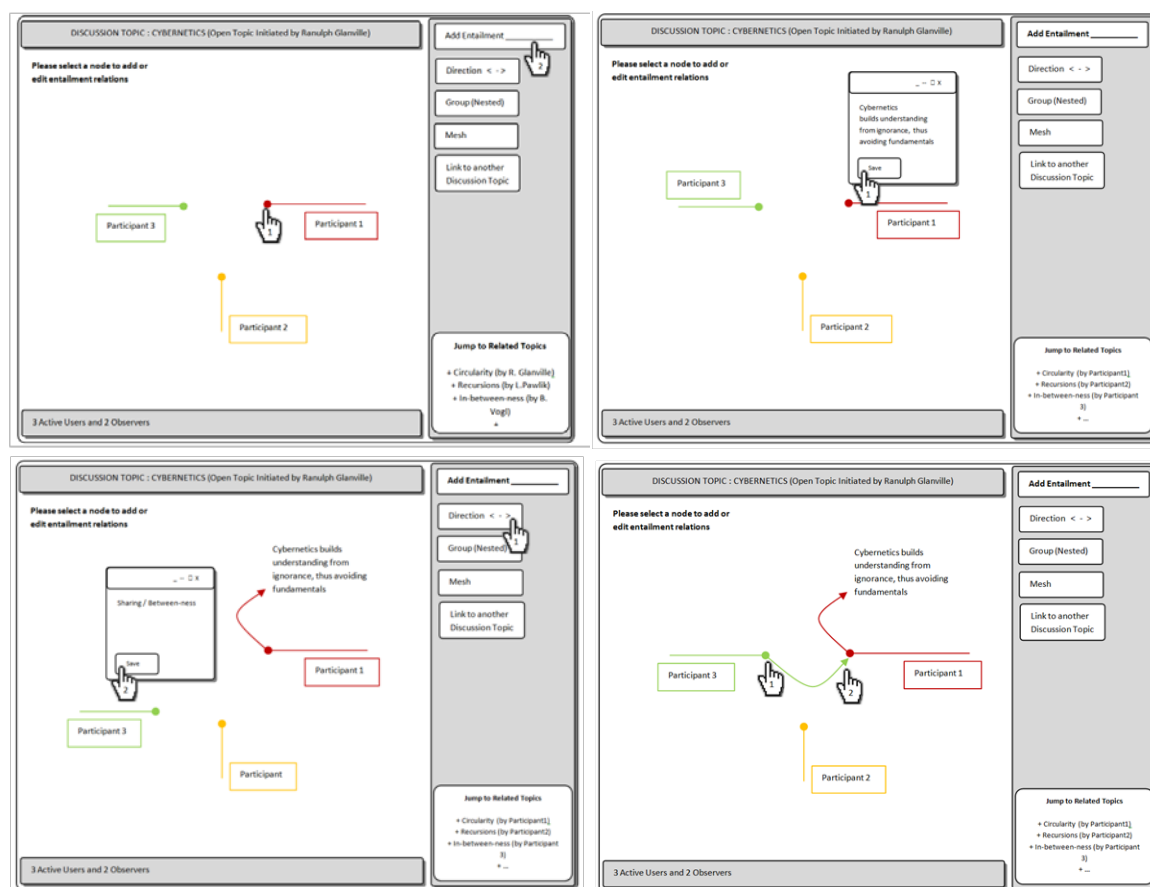


Figure 2: An interaction scenario for the reflective collaborative construction of a Quasi Entailment Mesh

The core of the proposed online environment is a web based application in which participants and "learnables" are represented as simple graphic entities. Using this application, participants can visually create a discussion subject which also creates an online interactive "conversation room". In this virtual room, they can add topics related to the subject, define directional relations between topics and describe these relations. Parts or all of these elements can also be grouped, nested to create a more comprehensive knowledge construction. It is also possible to link these knowledge constructions with each other, which can lead to a larger and hopefully circular body of knowledge.

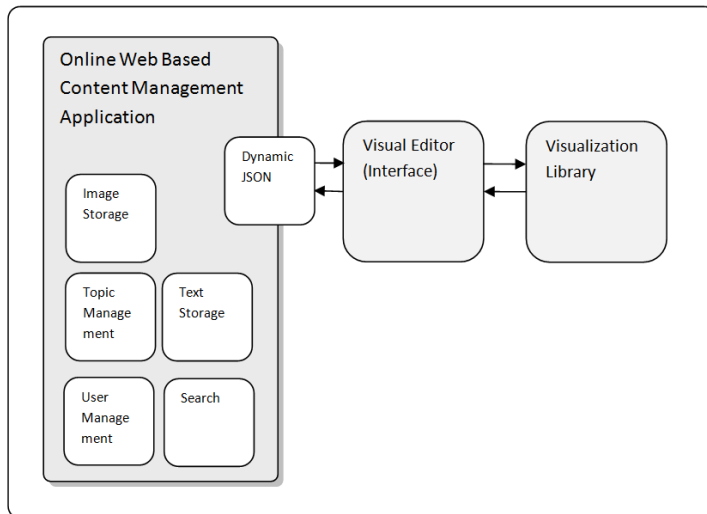


Figure 3: The proposed structure of the (open-source) web-based application

5. Conclusions

In conclusion, the opportunities and challenges of the development and implementation of the proposed online conversational learning environment will be discussed. In addition, a set of key criteria for the future development of the environment will be introduced.

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About the Author

Burak Pak is a Post-doctoral research fellow working on a long-term research project at Sint-Lucas School of Architecture, Faculty of Architecture and Arts, Association KU Leuven. He holds a PhD in Architecture (which is co-advised by Istanbul Technical University (ITU) and Carnegie Mellon University (CMU)) and an MSc in Architectural Design Computing from ITU. He was co-affiliated with Istanbul Technical University Faculty of Architecture and Institute of Informatics for seven years. He also worked as a Visiting Assistant Professor in Texas A&M University Visualization Lab and Carnegie Mellon University Computational Design Lab for twelve months. He has several publications in Design Computing related journals and International Conferences, which include experimental studies on Virtual Design Studios and strategies for integrating Virtual Environments into the Architectural Education